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Efficient context-based entropy coding for lossy wavelet image compressioı

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Abstract
We present an adaptive image coding algorithm based on novel backward-adaptive quantization/classification techniqu
uniform scalar quantizer to quantize the image subbands. Our algorithm puts the coefficient into one of several classes
values of neighboring previously quantized coefficients. These previously quantized coefficients form contexts which ar
the subband data. To each context type corresponds a different probability model and thus each subband coefficient is
arithmetic coder having the appropriate model depending on that coefficient's neighborhood. We show how the context
driven by rate-distortion criteria, by choosing the contexts in a way that the total distortion for a given bit rate is minimizₑ
probability models for each context are initialized/updated in a very efficient way so that practically no overhead informₐ
the decoder. Our results are comparable or in some cases better than the recent state of the art, with our algorithm beiı
of the published algorithms of comparable performance

Index Terms
Inspec

Controlled Indexing
adaptive codes adaptive signal processing arithmetic codes band-pass filters data compression entrop
filtering theory image classification image coding probability quantisation (signal) rate distortion theory
coding wavelet transforms

Non-controlled Indexing
adaptive image coding algorithm arithmetic coder backward-adaptive quantization/classification bit rate
neighborhood context selection distortion minimisation efficient context-based entropy coding filter bank
subbands lossy wavelet image compression performance probability model probability models quantizₑ
coefficients rate distortion criteria subband coefficient subband data uniform scalar quantizer

Author Keywords
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